

**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An apparatus for detecting a coplanarity of a plurality of leads of an electronic component that laterally extend from a main body thereof, the main body having, in a plan view thereof, a shape including a plurality of straight side portions from each of which the leads laterally extend, the apparatus comprising:

a holding device which holds the main body of the electronic component at an upper surface of the main ~~body;~~ body, wherein the holding device includes a rotating device which rotates the electronic component about an axis line thereof that perpendicularly passes through the upper surface of the main body;

an image taking device which faces the electronic component held by the holding device and has an optical axis that is inclined by a predetermined angle relative to a plane containing a bottom surface of the main body such that in a direction from the image taking device toward the ~~main body;~~ electronic component, the optical axis goes down in a direction from the upper surface to the bottom surface; surface, wherein the rotating device rotates the electronic component, about the axis line thereof, to each of a plurality of angular positions at which a corresponding one of the plurality of side portions of the main body extends in a direction substantially perpendicular to the optical axis of the image taking device, at a position between the axis line of the electronic component and the image taking device, so that the image taking device takes an image of respective end portions of the leads extending from said one side portion of the main body;

a background forming device which is provided on one of opposite sides of the electronic component that is opposite to the other side thereof on which the image taking device

is provided, and which forms a background having an optical characteristic different from an optical characteristic of the leads; and

an image processing device which processes ~~an~~ the image of the respective end portions of the leads taken by the image taking device and thereby determines, as a first coplanarity, the coplanarity of the leads extending from said one side portion of the main body.

2. (Currently Amended) ~~An~~ The apparatus according to claim 1, wherein the background forming device comprises a light emitter which emits a light toward the electronic component and the image taking device.

3-4. (Canceled)

5. (Currently Amended) ~~An~~ The apparatus according to claim 1, further comprising a judging device which judges, based on at least one of the ~~coplanarity~~ first coplanarities determined by the image processing device with respect to the respective side portions of the main body of the electronic component, whether the electronic component is acceptable.

6. (Currently Amended) An apparatus for detecting a condition of an electronic component including a main body and a plurality of leads laterally extending from the main body, the apparatus comprising:

~~\_\_\_\_\_ a coplanarity detecting apparatus according to claim 1; and~~

a holding device which holds the main body of the electronic component at an upper surface of the main body;

a first image taking device which faces the electronic component held by the holding device and has an optical axis that is inclined by a predetermined angle relative to a plane containing a bottom surface of the main body such that in a direction from the image taking device toward the electronic component, the optical axis goes down in a direction from the upper surface to the bottom surface, and which takes an image of respective end portions of the leads;

a background forming device which is provided on one of opposite sides of the electronic component that is opposite to the other side thereof on which the image taking device is provided, and which forms a background having an optical characteristic different from an optical characteristic of the leads;

a second image taking device which is different from ~~a~~the first image taking device ~~as the image taking device of the coplanarity detecting apparatus~~ and which takes an image of ~~at least the bottom surface of the main body of the electronic component~~ as viewed in a direction perpendicular to the bottom surface of the ~~main body, electronic component~~;

an image-taking-device control portion which controls the first and second image taking devices to take the image of the respective end portions of the leads and the image of the bottom surface of the electronic component, respectively, at respective different timings; and

~~wherein the~~ an image processing device which comprises, ~~in addition to~~ a first image processing portion which processes the image of the respective end portions of the leads taken by the first image taking device and thereby determines the a coplanarity of the leads, and a second image processing portion which processes the image of the bottom surface of the electronic component taken by the second image taking device and thereby determines at least one positional error of the electronic component relative to the holding device in at least one direction parallel to the upper surface of the main body.

7. (Currently Amended) ~~An~~The apparatus according to claim 6, wherein the first and second image taking devices are provided at respective different positions at which the first and second image taking devices can take the image of the leads of the electronic component and the image of the bottom surface of the electronic component, respectively, in a state in which the electronic component is positioned at a same position.

8. (Currently Amended) ~~An~~The apparatus according to claim 6, ~~further comprising~~ an wherein the image-taking-device control portion ~~which~~ first controls the first image taking

device to take the image of the leads of the electronic component and then controls the second image taking device to take the image of the bottom surface of the electronic component.

9. (Currently Amended) ~~An~~The apparatus according to claim 8, wherein the holding device comprises a rotating device which rotates the electronic component about an axis line thereof that is perpendicular to ~~perpendicularly passes through~~ the upper surface of the main body ~~and passes through a substantial center of the upper surface~~, and wherein the image-taking-device control portion controls the rotating device to rotate the electronic component to an angular position at which the electronic component is to be mounted on a circuit substrate, and subsequently controls the second image taking device to take the image of the bottom surface of the electronic component.

10. (Currently Amended) A system for mounting at least one electronic component on a circuit substrate, the electronic component including a main body and a plurality of leads laterally extending from the main body, the system comprising:

~~an electronic component condition detecting apparatus according to claim 6;~~

a holding device which holds the main body of the electronic component at an upper surface of the main body;

a first image taking device which faces the electronic component held by the holding device and has an optical axis that is inclined by a predetermined angle relative to a plane containing a bottom surface of the main body such that in a direction from the image taking device toward the electronic component, the optical axis goes down in a direction from the upper surface to the bottom surface, and which takes an image of respective end portions of the leads;

a background forming device which is provided on one of opposite sides of the electronic component that is opposite to the other side thereof on which the image taking device

is provided, and which forms a background having an optical characteristic different from an optical characteristic of the leads;

a second image taking device which is different from the first image taking device and which takes an image of the bottom surface of the electronic component as viewed in a direction perpendicular to the bottom surface of the electronic component;

an image-taking-device control portion which controls the first and second image taking devices to take the image of the respective end portions of the leads and the image of the bottom surface of the electronic component, respectively, at respective different timings;

an image processing device including a first image processing portion which processes the image of the respective end portions of the leads taken by the first image taking device and thereby determines a coplanarity of the leads, and a second image processing portion which processes the image of the bottom surface of the electronic component taken by the second image taking device and thereby determines at least one positional error of the electronic component relative to the holding device in at least one direction parallel to the upper surface of the main body;

a supplying device which supplies the electronic component to the holding device  
~~of the electronic component condition detecting apparatus;~~

a supporting device which supports the circuit substrate;

a moving device which moves, while correcting the positional error of the electronic component detected by the image processing device ~~of the electronic component condition detecting device~~, the holding device holding the electronic component, from the supplying device to the supporting device via the first and second image taking devices, and allows the holding device to mount the electronic component on the circuit substrate supported by the supporting device; and

a coplanarity-utilizing control ~~means for controlling portion which controls~~ the moving device while utilizing the coplanarity detected by the ~~coplanarity detecting apparatus of the electronic component condition detecting apparatus~~ image processing device.

11. (Currently Amended) ~~A-~~The system according to claim 10, wherein the ~~coplanarity detecting apparatus coplanarity-utilizing control portion~~ comprises a judging device which judges, based on the coplanarity detected by the image processing device, whether the electronic component is acceptable, and ~~wherein the coplanarity-utilizing control means comprises a discarding control~~ ~~means for controlling portion which controls~~, when the judging device judges that the electronic component is not acceptable, the moving device to discard the electronic component at a predetermined discarding position.

12. (Currently Amended) ~~A-~~The system according to claim 10, wherein the moving device comprises:

an X-axis slide which is movable in an X-axis direction parallel to an X axis of an X-Y coordinate plane parallel to a surface of the circuit substrate;

an X-axis-slide moving device which moves the X-axis slide to an arbitrary position in the X-axis direction;

a Y-axis slide which is supported by the X-axis slide such that the Y-axis slide is movable relative to the X-axis slide in a Y-axis direction parallel to a Y axis of the X-Y coordinate plane that is perpendicular to the X axis; and

a Y-axis-slide moving device which moves the Y-axis slide to an arbitrary position in the Y-axis direction, and

wherein the holding device is supported by the Y-axis slide.

13. (Currently Amended) ~~A-~~The system according to claim 12, wherein the first and second image taking devices are provided at respective different positions at which the first and second image taking devices can take the image of the leads of the electronic component and the

image of the bottom surface of the electronic component, respectively, in a state in which the electronic component is on a path of movement thereof caused by a movement of the Y-axis slide relative to the X-axis slide.

14. (Currently Amended) ~~A~~The system according to claim 13, wherein the background forming device is provided on the X-axis slide.

15. (Currently Amended) ~~A~~The system according to claim 14, wherein the first image taking device comprises a camera which is provided at a position where the camera faces the background forming device through the electronic component held by the holding device.

16. (Currently Amended) ~~A~~The system according to claim 10, wherein the second image taking device comprises a direction changing device which is provided on the X-axis slide such that a first portion of the direction changing device faces the electronic component held by the holding device, and a camera which is also provided on the X-axis slide such that the camera faces a second portion of the direction changing device.

17. (New) The apparatus according to claim 1, wherein the image processing device determines, based on the respective first coplanarities determined thereby with respect to the respective side portions of the main body of the electronic component, a second coplanarity of the leads extending from all the side portions of the main body.

18. (New) The apparatus according to claim 17, further comprising a judging device which judges, based on the second coplanarity determined by the image processing device, whether the electronic component is acceptable.

19. (New) The apparatus according to claim 6, wherein the image-taking-device control portion first controls the second image taking device to take the image of the bottom surface of the electronic component and then controls the first image taking device to take the image of the leads of the electronic component.

20. (New) The apparatus according to claim 19, wherein the second image processing portion processes the image of the bottom surface of the electronic component taken by the second image taking device and thereby determines an angular-positional error of the electronic component about an axis line thereof that perpendicularly passes through the upper surface of the main body.

21. (New) The apparatus according to claim 20, wherein the holding device comprises a rotating device which rotates the electronic component about the axis line thereof, and wherein the image-taking-device control portion controls the rotating device to rotate the electronic component to eliminate the angular-positional error determined by the second image processing portion, and subsequently controls the first image taking device to take the image of the leads of the electronic component.